

Datenblatt | Data sheet

Tool steel S2

Steel balls made of low-alloy carbon steel, fully hardened. They are characterized by their high toughness and wear and impact resistance. These features make them particularly suitable for deep drilling applications.

Field of application

Drilling oil wells, wells in general, equipment for offshore oil drilling.

Corrosion resistance

Good strength in alkali solutions, satisfactory in contact with salts or industrial atmospheres, weak in contact with water and water vapors. No acid resistance.

Material

S2 Rockbit	T41902	55SiMoVa
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Chemical composition in %

C	Si	Mn	P	S	Mo	V
0,40 - 0,55	0,90 - 1,20	0,30 - 0,50	≤ 0,03	≤ 0,03	0,30 - 0,60	≤ 0,50

Physical / mechanical / thermal / electrical / magnetic characteristics

Characteristic	Symbol	Unit	Type	Note	Value
Density	δ	g/cm ³	Physical	Environmental temp.	7,72
Modulus of elasticity	E	GPa	Mechanical	-	200
Specific heat	C	J/kg*K	Thermal	Environmental temp.	468
Coefficient of linear thermal expansion	α	10 ⁻⁶ /°C	Thermal	(DT = 0 - 100 °C)	10,8
Thermal conductivity	λ	W/(m*K)	Thermal	Environmental temp.	19,0
Volume resistivity	ρ	Ω *m ⁻⁹	Electrical	-	165
Relative magnetic permeability	μ	-	Magnetical	paramagnetic	> 500

Technical characteristics

Characteristic	Type	Unit	Value	Unit	Value
Hardness	Mechanical	HRC	63 - 68		
Ultimate compressive strength	Mechanical	MPa	2100 - 2200	psi*10 ³	305 - 320
Operating temperature	Thermal	°C	-40 / 500	°F	-40 / 932

Available with

Diameter min/max (mm)	Diameter min/max (in)	Precision grade
4,500 - 75,000	3/16 - 3	gemäß ISO 3290-1 / DIN 5401 / AFBMA